

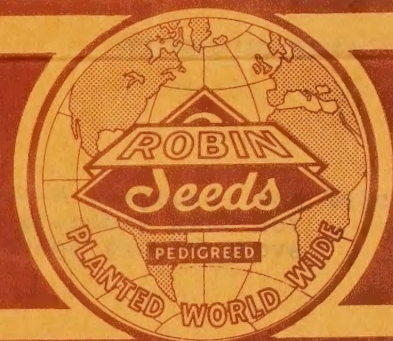
## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.





# Technical Data



PUBLISHED PERIODICALLY BY RESEARCH DEPARTMENT, LAWRENCE ROBINSON & SONS, MODESTO, CALIFORNIA, U. S. A.

## DISEASES OF THE CUCUMBER *Symptoms, Causes, and Controls*

*Please save for reference.  
Additional copies on request*

We give no warranty, express or implied, as to the productiveness of any seeds or bulbs we sell and we will not be in any way responsible for the crop. Our liability in all instances is limited to the purchase price of the seed.

For easy reference, common diseases of the CUCUMBER are discussed below with their causes, symptoms, and the most effective controls we've been able to determine to date; however, please bear in mind that control effectiveness varies with locality and season -- no guarantee is implied in these recommendations.

### ANGULAR LEAF SPOT.

**SYMPTOMS:** The leaves, at first, show angular shaped, water-soaked spots which tend to run together. They turn brown and crisp and in many instances drop out of the leaf. A bacterial exude which dries white, often appears on lower surface of leaf and on the young runners. Similar water-soaked spots which turn white and crack open appear on the fruit.

**CAUSES:** Diseased HOST PLANT decayed matter in the soil carries the bacterial organism through the winter. It is also carried by the seed harvested from diseased fruits. The organism is spread by irrigation water and insects.

#### **CONTROLS:**

- (1) Rotate crops so that cucumbers are not followed successively. Destroy host plants.
- (2) Soak planting seed for 5 minutes in MERCURIC CHLORIDE solution (1 oz. in 6 gal. water). Follow by a clean water rinse. After seed has dried, dust with dry-type fungicide. We have had excellent results with ARASAN, SEMESAN, and SPERGON.

### ANTHRACNOSE.

**SYMPTOMS:** Leaves develop circular, brownish, dead spots which often become numerous enough to virtually cover entire leaf. Elongated, light brown spots develop on stems and deep, water-soaked spots (at times, with pinkish centers) appear on fruits.

**CAUSES:** A fungus organism which over-winters on the seed of diseased fruits and on diseased HOST PLANT decayed material in the soil.

#### **CONTROL:**

- (1) Proper crop rotation. Do not plant members of CUCURBIT family successively.
- (2) Seed Treatment program as outlined above for ANGULAR LEAF SPOT.
- (3) Dusting: (Also somewhat effective for POWDERY MILDEW).

(a) 6% Yellow Cuprocide; 40% Calcium Arsenate; 76% Talc.

(b) 14% Copper-A Compound; 40% Calcium Arsenate; 76% Talc.

**METHOD:** As soon as young plants appear, begin weekly dusting with either (a) or (b) formulas and continue until vining begins. After vining begins, change to formulas (c) or (d) below, which also are helpful in combating APHIDS, CUCUMBER BEETLES, and most common diseases of the cucumber.

(c) 40% Calcium Arsenate; 30% Black Leaf 40; 6% Yellow Cuprocide; 54% Talc.





Technical Data

## DISEASES OF THE CUCUMBER Symptoms, Causes, and Controls

Please save for reference  
Additional copies on request

We give no warranty, express or implied, as to the product, but we will not be held responsible for any loss or damage to the crop. The liability is limited to the purchase price of the seeds.

For easy reference, common diseases of the CUCUMBER are discussed below with their causes, symptoms, and the most effective controls we've been able to determine to date; however, please bear in mind that control effectiveness varies with locality and season -- no guarantee is implied in these recommendations.

### ANGULAR LEAF SPOT.

**SYMPTOMS:** The leaves, at first, show angular shaped, water-soaked spots which tend to run together. They turn brown and crisp and in many instances drop out of the leaf. A bacterial exude which dries white, often appears on lower surface of leaf and on the young runners. Similar water-soaked spots which turn white and crack open appear on the fruit.

**CAUSES:** Diseased HOST PLANT decays matter in the soil carries the bacterial organism through the winter. It is also carried by the seed harvested from diseased fruits. The organism is spread by irrigation water and insects.

**CONTROLS:**  
(1) Rotate crops so that cucumbers are not followed successively. Destroy host plants.  
(2) Soak planting seed for 5 minutes in MERCURIC CHLORIDE solution (1 oz. in 8 gal. water). Follow by a clean water rinse. After seed has dried, dust with dry-type fungicide. We have had excellent results with ARASAN, SEMESAN, and SPERON.

### ANTHRACNOSE.

**SYMPTOMS:** Leaves develop circular, brownish, dead spots which often become numerous enough to vitally cover entire leaf. Elongated, light brown spots develop on stems and deep, water-soaked spots (at times, with pinkish centers) appear on fruit.

**CAUSES:** A fungus organism which over-winters on the seed of diseased fruits and on diseased HOST PLANT decays material in the soil.

**CONTROL:**  
(1) Proper crop rotation. Do not plant members of CUCURBIT family successively.  
(2) Seed Treatment program as outlined above for ANGULAR LEAF SPOT.  
(3) Dusting: (Also somewhat effective for POWDERY MILDEW)

(a) 6% Yellow Cupricide, 40% Calcium Arsenate, 75% Talc.  
(b) 14% Copper-A Compound, 40% Calcium Arsenate, 75% Talc.  
**METHOD:** As soon as young plants appear, begin weekly dusting with either (a) or (b) formulas and continue until vining begins. After vining begins, change to formula (c) or (d) below, which also are helpful in combating APHIDS, CUCUMBER BEETLES, and most common diseases of the cucumber.  
(c) 40% Calcium Arsenate, 30% Black Lead, 6% Yellow Cupricide, 24% Talc.



ANTHRACNOSE (CONT D)

- (d) 10% Calcium Arsenate; 30% Black Leaf 40; 14% Copper-A Compound; 46% Talc.

NOTE: as fruit maturity approaches, Black Leaf 40 probably will not be needed, therefore formulas (a) or (b) at this stage should prove satisfactory.

BACTERIAL WILT:

SYMPTOMS: One vine will wilt and shortly die. Within a few days, the entire plant will wilt with death following closely. To determine the disease, cut and expose a diseased runner cross section, to air for a few minutes; press ends firmly together, separate and thin strands of Wilt Bacteria will string out.

CAUSES: Spread largely by the CUCUMBER BEETLE in which the organism overwinters. The Cucurbit species are HOST PLANTS (Watermelon excepted).

CONTROLS:

- (1) As the disease first appears, IMMEDIATELY remove all infected plants.
- (2) Wilt bacteria overwinter only in the CUCUMBER BEETLE. It is the most serious factor in the spread of the disease and its control can, very largely solve the problem. DUSTING is the best control and enumerated below are effective formulas.

- (a) 40% Calcium Arsenate, 90% Talc.

- (b) The same formulas and technique of application as outlined in the controls for ANTHRACNOSE under headings (a), (b), (c), and (d) will be found effective in the control of both the BEETLE and the WILT BACTERIA.

DAMPING OFF.

SYMPTOMS: Plants fall over and die (at the ground line) of a wet-soft-rot on the stems. Also, seeds rot in the ground.

CAUSE: Various FUNGUS ORGANISMS living in the soil.

CONTROL: Dry powder treatment of the seeds before planting. We have found ARASAN, SEMESAN, and SPERGON to be very effective.

MACROSPORIUM LEAF BLIGHT.

SYMPTOMS: Small, circular, slight water-soaked spots (which enlarge in all directions) appear on leaves. Diameter of the spots ranges from pin point to  $\frac{1}{2}$  inch or more and usually show concentric rings and a definite margin on upper side of leaf. Infection occurs first near center of vine but soon spreads to all leaves and, in severe cases, will defoliate the vine.

CAUSES: A FUNGUS ORGANISM carried by irrigation water and wind. Overwinters in diseased HOST PLANT decayed matter and will live in the soil at least a full year.

CONTROLS:

- (1) DUSTS (If Macrosporium Leaf Blight is the only disease or pest.)

- (a) 6% Yellow Cuprocide; 94% Talc.

- (b) 14% Copper-A Compound; 86% Talc.

NOTE: If Cucumber Beetles, Bacterial Blight, Anthracnose, or Angular Leaf Spot are also present, Dust Formulas given for Anthracnose, (formulas (a), (b), (c), are also effective for Macrosporium Leaf Blight.

- (2) SPRAYS (If Macrosporium Blight is the only disease or pest.)

- (a) Per 100 gal. of water;  $1\frac{1}{2}$  lb. Yellow Cuprocide;  $\frac{1}{2}$  oz. Trinton (B-1956) spreader (soft water) and 1 oz. (hard water).

- (b) Per 100 gal. of water; 4 lb. Copper-A Compound;  $\frac{1}{2}$  oz. Trinton (B-1956) spreader (soft water) and 2 oz. (hard water).

- (c) Per 100 gal. of water; 2 qt. Dithane; 4 lb. Zinc Sulphate;  $\frac{1}{2}$  lb. Hydrated Lime  $\frac{1}{2}$  oz. Trinton (B-1956) spreader (soft water) and 1 oz. (hard water).

MOSAIC (also known as NUBBIN DISEASE, WHITE PICKLE and WHITE WART.)

SYMPTOMS: Edge of leaves turn downward, whole leaf becomes wrinkled and mottled with yellow and green blotches. Green, warted projections with light areas







## MOSAIC (CONT'D)

between, appear on the fruit which develops a bitter taste. Early season infection causes dwarfing; late season infection causes dwarfing only on new growth occurring after infection sets in. Mosaic can occur at any growth-stage.

CAUSES: A virus, transmitted by APHIDS and CUCUMBER BEETLES. It over-winters in seed of the Wild Cucumber and infected Matrimony Vine, Perennial, Milkweed, and Ground Cherry.

## CONTROLS:

- (1) Immediately destroy and remove diseased plants.
- (2) Eradicate HCST PLANTS mentioned above in and within 400 yards of Cucumber Field.
- (3) Dust for APHIDS and CUCUMBER BEETLES.

(a) 10% Calcium Arsenate; 30% Black Leaf 10; 14% Copper-A Compound; 46% Talc.

This issue of TECHNICAL DATA covering DISEASES OF THE CUCUMBER, is the first in a group which will cover principal diseases, their causes, symptoms, and controls of all of the CUCURBIT SPECIES that we have under annual production.

We hope you will write for additional copies for your roadmen. Increase your Dealers confidence in YOU and in YOUR STOCKS by having, at your salesman's fingertips, information of this nature by which they can intelligently inform.

NET RESULT: BIGGER CROPS --  
CUSTOMER ENTHUSIASM & LOYALTY.

Series 1 - Bulletin 2.  
June, 1947

LAWRENCE ROBINSON & SONS  
RESEARCH DEPARTMENT







# LAWRENCE ROBINSON & SONS

LAWRENCE R. ROBINSON  
LAWRENCE R. ROBINSON, JR.  
WARD F. ROBINSON

CANTALOUPE CITRON CUCUMBER DILL GOURD PUMPKIN SQUASH WATERMELON ETC.

SPECIALIST PRODUCERS OF VEGETABLE

*Seeds*

MODESTO, CALIFORNIA

CABLE ADDRESS: "ROBANDSONS"  
— ALL CODES —

ROCKY FORD, COLO.  
GREELEY, COLO.  
GRIDLEY, CALIF.  
U. S. A.

June, 1947

T H A N K S --- for your nice comments!

We give no warranty, express or implied, as to the productiveness of any seeds or bulbs we sell and we will not be in any way responsible for the crop. Our liability in all instances is limited to the purchase price of the seed.

Its been almost a month since our first mailing of TECHNICAL DATA and VARIETAL DATA.

Already, we have received innumerable letters in spontaneous, unsolicited response to these new ROBIN-SEED reports which are mailed to our friends and customers in over 70 countries and printed in 4 languages.

## A FEW OF THE COMMENTS:

"So much important information of a technical nature is never read due to lack of time, that your "boiled-down" TECHNICAL DATA shows promise of high value to us."

"Please mark your records to send us 12 of your two reports each issue. We want each of our road men to have these for reference."

"There's a woeful lack of easy reading information of this type. You're doing a good job -- keep it up."

"We like your idea of keeping us posted on new varieties in your VARIETAL DATA sheet. Please send us samples of the three varieties mentioned in the last report -- we want to try them out."

"If all of your reports are as live and interesting as the last two, you'll be performing a real service of which we know of no other in the Seed Trade."

So ran the comments .. from seed distributors the country over. We hope that you too, will find these reports valuable. MAY WE REPEAT THIS INVITATION -- "Write us any comments or suggestions that may occur to you as to how we can increase their value to YOU". It will be welcomed.

Please remember -- (1) ADDITIONAL COPIES OF CURRENT ISSUES ON REQUEST.  
(2) SAMPLES OF ANY VARIETIES FOR YOUR TRIAL GROUNDS.  
(3) THIS IS ANOTHER ROBIN-SEED "EXTRA" -- NO CHARGE OR OBLIGATION, EVER.



"AMERICA'S *Safest* GROWERS"



LAWRENCE R. ROBINSON  
LAWRENCE R. ROBINSON JR.  
WARD R. ROBINSON

CABLE ADDRESS: ROBINSONS  
— ALLCOBS —

ROCKY FORD, CALIF.  
GRIFFIN, CALIF.  
GRIFFIN, CALIF.  
U.S.A.

MONESTO, CALIFORNIA

June, 1945

THANKS — for your nice comment!

We give no warranty, express or implied, as to the productivity of any seeds or bulbs we sell and we will not be in any way responsible for the crop. Our liability is limited to the purchase price of the seeds.

It has been almost a month since our first mailing of TECHNICAL DATA and VARIETAL DATA.

Already, we have received innumerable letters in spontaneous, unsolicited response to these new ROBINSON-SEED reports which are mailed to our friends and customers in over 70 countries and printed in 4 languages.

#### A FEW OF THE COMMENTS:

"So much important information of a technical nature is never read due to lack of time, that your 'holed-down' TECHNICAL DATA shows promise of high value to us."

"Please mark your records to send us 12 of your two reports each issue. We want each of our road men to have these for reference."

"There's a wonderful lack of easy reading information of this type. You're doing a good job — keep it up."

"We like your idea of keeping us posted on new varieties in your VARIETAL DATA sheet. Please send us samples of the three varieties mentioned in the last report — we want to try them out."

"If all of your reports are as live and interesting as the last two, you'll be performing a real service of which we know of no other in the Seed Trade."

So many the comments as from seed distributors the country over. We hope that you too, will find these reports valuable. MAY WE REQUEST THIS INVITATION — Write us any comments or suggestions that may occur to you as to how we can increase their value to you? It will be welcomed.

Please remember — (1) ADDITIONAL COPIES OF CURRENT ISSUES ON REQUEST. (2) SAMPLES OF ANY VARIETIES FOR YOUR TRIAL GROWING. (3) THIS IS ANOTHER ROBINSON-SEED "LETTER" — NO CHARGE OR OBLIGATION, EVER.

"AMERICA'S Safest CROWERS"

